

Abstract

A control unit for engine startup includes a throttle valve, a bypass air quantity-regulating valve, an ignition coil, a bypass air quantity controller, an ignition timing feedback controller, and a multi-spark controller. The throttle valve is disposed in an intake passage of an engine to control intake air quantity. The bypass air quantity-regulating valve controls the air quantity in a bypass passage that bypasses the throttle valve. The ignition coil permits an ignition plug of a same cylinder of the engine to produce multi-sparking during one cycle. The bypass air quantity controller controls the bypass air quantity-regulating valve such that the engine speed is at a target engine speed. The ignition timing feedback controller performs feedback control for the ignition coil such that the ignition timing of the ignition plug is at a target ignition timing. The multi-spark controller controls the ignition coil such that the ignition plug performs multi-spark as necessary. In operation, the control unit reduces the amount of unused hydrocarbons and improves the drivability at startup of a cold engine.